

## Delta-Sigma Modulated Photodetection Method (Tier 2)

Completed Technology Project (2015 - 2016)



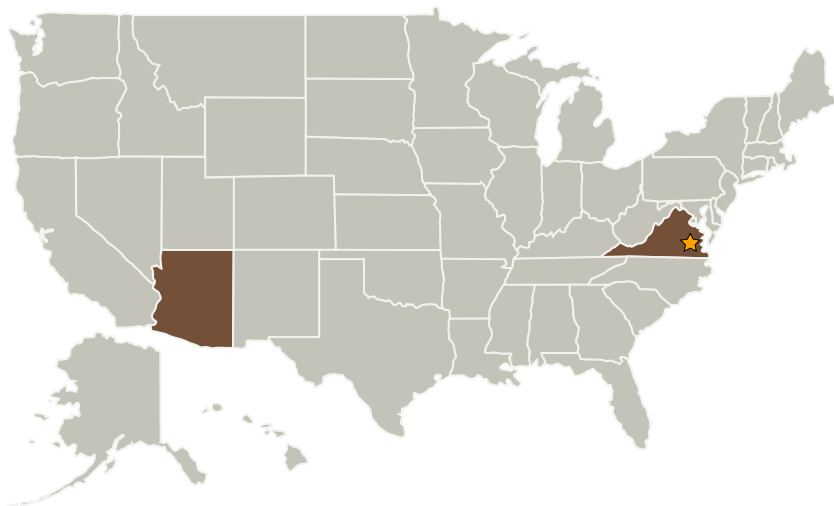
## Project Introduction

Using alternative methods of data processing based on mixed-signal integrated circuits allows an entire multi-channel optical detection-to-digital representation system to be built on a circuit platform of about 2 mm x 2mm. The goal is to present a dual-channel DIAL detection system to provide an integrated, correlated ratiometric measurement in a package that will fit on or near an optical focal plane.

## Anticipated Benefits

The oil/gas industry may have use in remote detection of leaking gases. There may be a possibility for use in chemical weapons detection. Portable methane detection for use in coal mines or other such environments seems feasible.

## Primary U.S. Work Locations and Key Partners



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## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission  
Directorate (STMD)

### Lead Center / Facility:

Langley Research Center (LaRC)

### Responsible Program:

Center Innovation Fund: LaRC  
CIF

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Organizations Performing Work	Role	Type	Location
★ Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
Caldeco	Supporting Organization	Industry	
University of Arizona	Supporting Organization	Academia	Tucson, Arizona

## Primary U.S. Work Locations

Arizona	Virginia
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## Project Website:

<https://www.nasa.gov/directorates/spacetech/home/index.html>

## Project Management

**Program Director:**

Michael R Lapointe

**Program Manager:**

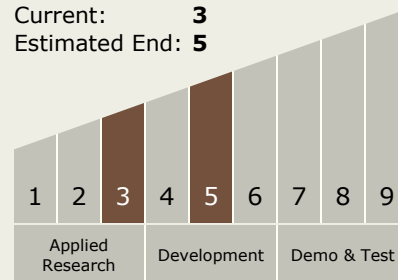
Julie A Williams-byrd

**Principal Investigator:**

Thomas D Mcglone

## Technology Maturity (TRL)

Start: **3**  
 Current: **3**  
 Estimated End: **5**



## Technology Areas

**Primary:**

- TX14 Thermal Management Systems
  - └ TX14.2 Thermal Control Components and Systems
    - └ TX14.2.8 Measurement and Control